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Initial comments from IEER to the Minnesota Department of Commerce regarding the value of solar tariff methodology stakeholder workshops

The Institute for Energy and Environmental Research (IEER) submits these comments to the Minnesota Department of Commerce on the value of solar tariff methodology proceedings. We appreciate the opportunity to weigh in on this important process and have four major recommendations at this initial stage of the proceeding:

1. **The MN DOC should include all elements of costs and benefits of distributed solar PV in their methodology for determining a value of solar.**

   At the September 17, 2013 stakeholder meeting, a review of 16 studies which analyzed the costs and benefits of distributed PV showed a wide range of factors and approaches. The statutory language only requires the Department to include "the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value" while allowing for discretion to "based on known and measurable evidence of the cost or benefit of solar operation to the utility, incorporate other values into the methodology, including credit for locally manufactured or assembled energy systems, systems installed at high-value locations on the distribution grid, or other factors."[1]

   The fact that the law allows the Department to consider factors not explicitly defined in law is a very good piece of this legislation. Distributed solar PV has a broad set of benefits and as the costs of climate disruption become more evident, we believe the value of solar will continue to increase. But we also recognize that the distribution system will need investments - that is there will be costs - if these benefits are to be fully realized. Setting up a methodology which incorporates as many of the various benefits and costs of distributed solar PV as possible makes the result more robust and accurate, which will help it withstand scrutiny from all sides.

[1] Minnesota Session Laws 2013, Chapter 85, Article 9, Section 10, Subd.10(f) https://www.revisor.mn.gov/laws/?id=85&year=2013&type=0

The inclusion of a broad array of factors also builds flexibility into the methodology for utilities to continue to adjust their value of solar tariff according to changes in their system, the broader electric system, the solar industry, and society as a whole. The more detailed and precise the defined components in the calculation are, the easier it will be for utilities to make adjustments in the value of one area as they learn more about integrating solar into their system.

We also note that there are some factors that cannot be monetized and to the extent that they can be incorporated and given some sort of consideration in the methodology, the more comprehensive the value of solar is likely to be. For instance, distributed solar PV, for the first time, allows the democratization of energy across society and gives people the opportunity to choose how they get their energy supply.

2. The methodology should require transparency and detail in the calculations.

This recommendation is closely tied to the recommendation above. Having a broad and detailed methodology makes transparency key for accountability and accuracy. The methodology should require a level of detail in the utility calculations that are publicly available. This is essential for ensuring that the values assigned to broad social and environmental costs and benefits are aligned with those of the larger community. Transparency also assigns a level of trust and validity in the methodology and valuation process itself by allowing advocates and other stakeholders the opportunity to evaluate those values. The public engagement and dialogue will ensure the end result is one that all parties have agreed upon, or at the least had the opportunity to engage in.

3. The environmental benefits should be appropriately broad.

Solar PV, once installed, requires no fuel or water and needs very little maintenance to operate for decades. This has a tremendous benefit to the environment and should be included, however the methodology must also incorporate the environmental benefits for any reduction, postponement or other delay in a utility's need for generation from fossil fuels. This calculation should include not only the avoided cost of building or operating a generation plant, but also the avoided fuel cost, water use, and emissions related to that avoided fossil fuel generation. By thoroughly identifying the various environmental factors, the methodology will be resilient enough to integrate future learning and information about the environmental considerations and costs of using distributed solar PV.

Similarly, looking at the environmental impact along the system losses is an important consideration here. The September 17, 2013 presentation stated that approximately 1/10th

of the input at a fossil fuel generation station is delivered as output.[2] Thus the calculation for avoided environmental impacts, including emissions, needs to take into account the additional generation that would have been lost due to inefficiencies in the system along the way, but was not generated due to the presence of on-site distributed solar PV.

4. **The methodology should include all particulate pollutants in addition to carbon, and include analysis of a broad range of costs associated with this pollution.**

Because solar PV does not have any carbon or other emissions from its generation of electricity, the methodology must include consideration of the avoided emissions that otherwise would have been produced by the utility's marginal generation resource. The emissions considerations should extend beyond carbon and include SOX and NOX, and other particulates which exacerbate or add to air quality and water pollution. In the even the marginal resource is a natural gas facility, the avoided methane emissions should also be included, as methane is a significant contributing factor to a warming atmosphere.

How these emissions are monetized and what their financial values are is far from agreed-upon. Estimates of the social cost of one ton of carbon in the next few decades ranges from just over $20 to over $200, depending on the assumptions used.[3] This highlights the need for the methodology to include a sensitivity analysis to see the impact on the value of solar calculation given differing parameters and assumptions.

[2] http://mn.gov/commerce/energy/images/MN-VOS-workshop_130916_v3.pdf
[3] http://www.epa.gov/climatechange/EPAactivities/economics/scc.html